भारतीय मानक
Indian Standard

IS 13347 : 2018
(Reaffirmed 2022)

क्लच पेंसिल — विशिष्टि

(पहला पुनरीक्षण)

Clutch Pencils — Specification

(First Revision)

ICS 97.180

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July 2018 **Price Group 2**

Printing Inks, Stationery and Allied Product Sectional Committee, CHD 14

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Printing Inks, Stationery and Allied Product Sectional Committee had been approved by the Chemical Division Council.

This Indian Standard was originally published in 1992. This standard specifies the material, type and size, workmanship and finish, methods of sampling and tests for clutch pencils.

Clutch pencils are in vogue currently due to many factors which include conservation of natural resources such as wood, suitability of use with leads of different hardnesses and thicknesses and convenience in carrying.

This standard is being revised with the aim of updating the standard and also to take into consideration the technical advancements that would have taken place since the publication of this standard.

In the formulation of this standard due weightage has been given for the selection of proper type of material for the manufacture of clutch pencils and the prevalent trade practices being followed by the manufacturers of these pencils.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

CLUTCH PENCILS — SPECIFICATION

(First Revision)

1 SCOPE

This standard specifies the material, type and size, workmanship and finish, methods of sampling and tests for clutch pencils.

2 REFERENCES

The standards given below contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below:

IS No.	*Title*
2267 : 1995	Polystyrene moulding and extrusion materials — Specification (*second revision*)
2500 (Part 1) : 2000/ ISO 2859-1 : 1999	Sampling inspection procedures: Part 1 Attribute sampling plans indexed by acceptable quality limit (AQL) for lot-by-lot inspection (*third revision*)
4905 : 2015/ ISO 24153 : 2009	Random sampling and randomization procedures (*first revision*)
10951 : 2002	Polypropylene materials for moulding and extrusion (*first revision*)

3 TERMINOLOGY

For the purpose of this standard, the following definition shall apply.

3.1 Main Body

A central portion of the pencil to which are attached tip cone, intermediate support cone and fixing plug.

NOTE — The main body, intermediate support cone and the fixing plug can also be in one piece.

4 NOMENCLATURE

The nomenclature shall be as shown below in Fig. 1.

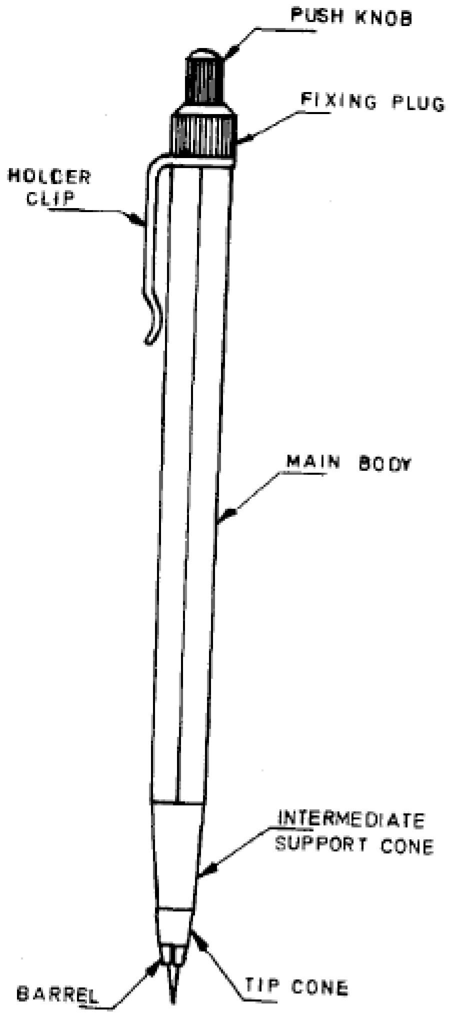

FIG. 1 TYPICAL CLUTCH WRITING PENCIL, TYPE 2

5 TYPES

The clutch pencils shall be of two types, depending upon the shape of the main body.

a) Type 1 — Round body, and

b) Type 2 — Hexagonal or any other polygonal body.

The above type of clutch pencils may be manufactured subject to the agreement between the purchaser and the supplier. However, for all other characteristics, both types of clutch pencils shall conform to the requirements of this standard.

6 SIZES

6.1 The minimum and the maximum length of the clutch pencils shall be 130 mm and 155 mm, respectively. The minimum and the maximum cross-section (diameter or, in the case of polygonal body, the distance between the farthest corners) of the main body of the pencil shall be 7.0 mm and 9.5 mm respectively.

6.2 The barrel and the clutch shall be designed to hold lead slips of nominal diameters 2 mm, 1.5 mm, 1 mm and 0.5 mm. In the case of pencils with 0.5 mm lead, the barrel should accommodate a suitable number of extra slips.

7 MATERIALS

7.1 Main Body, Intermediate Support Cone

The material used in the manufacture of the main body and the intermediate support cone shall be either metal with suitable corrosion-resistant finish or plastics or both. The plastic material used shall be acrylonitrile butadiene styrene or cellulose acetate-butyrate or polypropylene (*see* IS 10951) or type 3 polystyrene (*see* IS 2267). It shall satisfy the accelerated ageing test and the drop test as prescribed in **9.1** and **9.4**, respectively.

7.2 Tip Cone

The tip cone shall be made of metal with suitable corrosion resistant finish. Metal tips may be embedded in high-strength plastic material such as acrytonitrile butadiene styrene, cellulose acetate-butyrate, etc.

7.3 Push Knob

The push knob shall be made of metal with suitable corrosion resistant finish or high strength plastics material such as acrylonitrile butadiene styrene, cellulose acetate-butyrate, polypropylene etc.

7.4 Lead Sharpener

The lead sharpener should be manufactured out of good quality carbon steel sheets of thickness not less than 0.5 mm. If should be suitably treated to prevent rusting.

7.5 Holder Clip

7.5.1 The tip of the clip shall be rounded smooth so that it does not tear the cloth when clipped in and out and shall have a reasonably tight grip.

7.5.1.1 It shall be suitably treated to prevent rusting, if made of metal.

7.5.2 *Clip Action*

The clip shall be slided over a metal plate of 3.0 mm to 3.2 mm thickness and then removed. The clip shall return to the original position touching the surface of the cap. After this test is repeated 30 times, the clip is slided over a wooden sheet of 0.15 mm to 0.25 mm thickness and the wooden sheet is held in such a manner that the clutch pencil is in inverted vertical positions. The strength of the clip shall be sufficient to keep the clutch pencil remaining in such inverted vertical position for at least 30 min.

7.6 Fixing Plug

7.6.1 The material shall be either metal with suitable corrosion resistant finish or plastic or both. The plastic material used shall be acetate-butyrate or polypropylene (*see* IS 10951) or type 3 polystyrene (*see* IS 2267). It shall satisfy the accelerated ageing test and the drop test as prescribed in **9.1** and **9.4**, respectively.

7.6.2 If the fixing plug is not in one piece with the main body, the wall thickness shall be 0.3 mm, minimum.

7.7 Spring

Spring shall be made of good quality spring steel wire.

7.8 Barrel

The lead of the clutch pencil shall be located inside the barrel. The barrel shall be made of suitable material such that the lead does not break inside the barrel during drop test, spring tension test, load test and pull test.

8 WORKMANSHIP AND FINISH

8.1 Metal Parts

All parts of the clutch pencil of same size and make shall be interchangeable. The finish of external surface shall be smooth, and shall not have scratches, blister sprits, sharp edges and other defects. The internal surface shall also be smooth and free from defects.

8.2 If the body is not in one piece, its sections cemented or screwed together shall be so joined that they form a strong and rigid unit.

8.3 There should not be any bend in the body of the pencil, and the tip cone and the push-knob shall be in same axis as the main body.

9 TEST AND STRENGTH MEASUREMENT

9.1 Accelerated Ageing Test

Clutch pencils made of plastic materials shall pass the accelerated ageing test and shall be in usable condition when subjected to the temperature cycle as specified below:

Time	*Temperature, °C*
4 h	0
4 h	50
4 h	0
4 h	50
7 days	27

9.2 Corrosion Resistance Test

The metallic parts shall be subjected to a corrosion resistance test as prescribed in **9.2.1**.

9.2.1 The metal parts shall be dipped in 10 percent (*w*/*w*) boiling aqueous solution of sodium chloride for a period of 15 min. After removal from this solution, these shall be immersed in a 10 percent (*w*/*w*) aqueous solution of sodium chloride at room temperature, for one h. These shall then be removed, wiped with a soft cloth and allowed to dry for 24 h at room temperature. The metal parts shall not show any visible signs of corrosion.

9.3 Spring Tension Test

Operate the clutch by pressing on the push knob 100 times. The spring shall neither show any permanent set nor lose its action. The lead in the barrel shall also not break during the test.

9.4 Drop Test

After pushing the lead inside, drop the clutch pencil 10 times on a wooden floor from a height of 1.2 m in horizontal position. After the 5th drop, examine the pencil. There shall not be any evidence of damage to the pencil. The lead in the barrel shall also not break.

9.5 Lead Test

Place a sheet of paper on a platform weighing scale. Adjust the lead to project out about 1 mm from the tip cone. Holding the pencil in vertical position, press the tip of the lead on the paper sheet. The lead shall not slip inside on the application of a force of 0.5 kg/cm^2. The lead in the barrel shall also not break during the test.

10 MARKING AND PACKAGING

10.1 Marking

The clutch pencil shall be marked with the indication of the sources of manufacture on the body of the clutch pencil.

10.1.1 *BIS Certification Marking*

The clutch pencils may also be marked with the BIS Certification Mark.

10.1.1.1 The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act,* 2016 and Rules and Regulations made thereunder. The details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

10.2 Packaging

The clutch pencil shall be packed as agreed to between the purchaser and the supplier. The packages shall also be marked with the following:

a) Indication of the source of manufacture,
b) Type of the clutch pencil,
c) Size of the clutch pencil,
d) Diameter of the lead,
e) Grading of the lead,
f) Month and year of manufacture, and
g) Batch or Code number.

11 SAMPLING

11.1 Lot

All the clutch pencils having the same type, size and material and manufactured under the same conditions shall constitute a lot shall be tested separately for the various requirements of this specification.

11.2 Unless otherwise agreed to between the supplier and the purchaser, the procedure given in IS 2500 (Part 1) shall be followed for sampling inspection. For various characteristics, the sampling plan as given in **2.1** and **2.2** shall be followed. However, the samples shall be drawn randomly for testing the various requirements of the specification as per IS 4905.

11.2.1 For size as prescribed in **6**, material as prescribed in **7** and workmanship and finish as prescribed in **8**, the single sampling plan with Inspection Level III and Acceptable Quality Level (AQL) 4 percent given in Table 1 and Table 2 of IS 2500 (Part 1) shall be followed.

11.2.2 For clip test as prescribed in **7.5.2**, accelerated ageing test as prescribed in **9.1**, corrosion resistance test as prescribed in **9.2**, spring tension test as prescribed in **9.3**, drop test as prescribed in **9.4**, and lead test as prescribed in **9.5**, the single sampling plan with Inspection Level II and Acceptable Quality Level (AQL) 2.5 percent given in Table 1 and Table 2 of IS 2500 (Part 1) shall be followed.

11.2.3 *Criteria for Conformity*

For the lot to be accepted as conforming to specifications, the total number of defectives found in the sample shall be less than or equal to the acceptance number (a) given in Table 2 of IS 2500 (Part 1).

Bureau of Indian Standards

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Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc No.: CHD 14 (10011).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Published by BIS, New Delhi